CLAIMS

What is claimed is:

1. A trocar comprising an insert end, said insert end including a fluid and airtight chamber.

2. The trocar according to claim 1, wherein said chamber includes a sealing means at two ends thereof for maintaining a fluid and airtight seal in both a neutral condition and an engaged position wherein an instrument extends through said chamber and said sealing means.

3. The trocar according to claim 2, wherein said sealing means includes a deformable diaphragm sealingly disposed at each of said ends of said chamber.

4. The trocar according to claim 3, wherein said sealing means is further defined as including a series of at least two deformable diaphragm and at least one O-ring.

5. The trocar according to claim 4, wherein said deformable diaphragms have at least one slit therethrough for the insertion of an instrument through said slit.

6. The trocar according to claim 5, wherein said slits on consecutive ones of said deformable diaphragms are perpendicular to one another.

7. The trocar according to claim 1, wherein said trocar includes a neck portion for allowing insertion of an instrument there through and substance removing means for removing any substance from within said neck portion about an instrument disposed within said neck portion.

8. The trocar according to claim 7, wherein said neck portion includes an instrument lumen in communication with said chamber for receiving an instrument therethrough and fluid flow means for flowing an inert fluid through said instrument lumen from proximate to said chamber toward and out an opposite end of said instrument lumen.

9. The trocar according to claim 8, wherein said fluid flow means includes at least one downflow lumen extending through at least part of a length of said neck portion having ports opening into said instrument lumen and an inlet opening at an opposite end thereof for receiving the inert fluid for flowing fluid therethrough and into said instrument lumen proximate to said chamber.

10. The trocar according to claim 9, wherein said instrument lumen includes outlet ports integral therewith and proximate to said opposite end of said instrument lumen for releasing fluid therefrom which flows through said instrument lumen with any substance displaced therein.

11. The trocar according to claim 1, further including agitating means for agitating particles within said trocar, said agitating means operatively connected to said trocar.

12. The trocar according to claim 11, wherein said agitating means is selected from the group consisting essentially of a manual agitator and an automatic agitator.

13. The trocar according to claim 12, wherein said automatic agitator is an ultrasonic agitator.

14. The trocar according to claim 1, wherein said trocar is formed of a resilient material.

15. The trocar according to claim 14, wherein said resilient material is selected from the group consisting essentially of plastic, metal, and a plastic-metal composite.

16. The trocar according to claim 15, wherein said plastic is a plastic that can be seen through upon application of ultrasound.

17. A method of maintaining a fluid and airtight environment when introducing a surgical instrument into a patient, said method including the step of inserting the instrument into the patient through a fluid and airtight seal.

18. The method according to claim 17, wherein said inserting step is further defined as inserting the instrument through a series of seals and O-rings.

19. The method according to claim 18, wherein said inserting step is further defined as inserting the instrument through a neck portion of a trocar, the neck portion including the series of seals and O-rings, the seals having a neutral condition and an engaged condition when the instrument is extended there through.

20. The method according to claim 17, further including the step of flowing an inert fluid through a neck portion of the trocar proximate to the seal to and out of an opposite distal end thereby removing any substances from the neck portion.

21. The method according to claim 20, wherein said flowing step includes flowing the fluid through a downflow lumen in the trocar to a chamber of the trocar and through an upflow lumen in the trocar.

22. The method according to claim 17, further including creating a hole in the patient for insertion of the trocar.

23. The method according to claim 22, wherein said creating step includes creating a hole in a cavity of the patient using an obturator.

24. The method according to claim 22, wherein said creating step includes creating a hole in a cavity of the patient using a knife or scalpel.

25. The method according to claim 22, further including maintaining the trocar in place within the patient.

26. The method according to claim 25, wherein said maintaining step includes maintaining the trocar in place via the hole created in the patient.

27. A method of removing a substance from a lumen of a trocar by flowing fluid through the lumen and removing the substance from the lumen with the fluid.

28. The method according to claim 27, further including the step of inserting an instrument through the lumen and removing the substance from the lumen about the instrument.

29. The method according to claim 28, further including the step of sealing the lumen at an insert end of the lumen about the instrument, flowing fluid into the lumen proximate to the insert end, and forcing the flow of fluid through the lumen to a fluid discharge end.

30. The method according to claim 27, further including agitating the trocar for aiding in the removal of substances.